

FIG.1

FRAME

TIME

FREQUENCY

5 PILOT

DATA

FIG.2 FIG.9 FIG.11

TRANSMISSION DATA

10 100 120 CODING SECTION

110 130 MODULATION SECTION

140 SUBCARRIER ASSIGNING SECTION

150 IFFT SECTION

160 GI INSERTING SECTION

15 170 RADIO TRANSMISSION SECTION

200 RADIO RECEPTION SECTION

210 GI REMOVING SECTION

220 FFT SECTION

230 PILOT EXTRACTING SECTION

20 240 CHANNEL ESTIMATION SECTION

250 DEMODULATION SECTION

260 DECODING SECTION

RECEPTION DATA

270 PILOT PATTERN SELECTING SECTION

25

FIG.3 FIG.11 FIG.12

FROM RADIO RECEPTION SECTION 200

272 DELAY DISPERSION MEASURING SECTION

274 MOVING SPEED ESTIMATING SECTION

276 OTHER-CELL INTERFERENCE MEASURING SECTION

FROM PILOT EXTRACTING SECTION 230

5 278 PILOT PATTERN INFORMATION GENERATING SECTION
TO CODING SECTION 120

FIG.4 FIG.10 FIG.16

300 RADIO RECEPTION SECTION

10 310 GI REMOVING SECTION

320 FFT SECTION

330 PILOT EXTRACTING SECTION

340 CHANNEL ESTIMATION SECTION

350 DEMODULATION SECTION

15 360 DECODING SECTION

RECEPTION DATA

TRANSMISSION DATA

400 CODING SECTION

410 MODULATION SECTION

20 420 PILOT GENERATING SECTION

430 MULTIPLEXING SECTION

440 IFFT SECTION

450 GI INSERTING SECTION

460 RADIO TRANSMISSION SECTION

25

FIG.5A FIG5B

TIME

FREQUENCY

FIG.6A FIG.6B

RECEPTION POWER

5 FREQUENCY

FIG.7A FIG.7B

RECEPTION POWER

TIME

10

FIG.8

MOVING SPEED

DELAY DISPERSION

PATTERN

15

FIG.9

280 RECEPTION QUALITY MEASURING SECTION

290 MCS SELECTING SECTION

20 FIG.11

271 OFFSET ADDING SECTION

FROM MCS SELECTING SECTION 290

FIG.12

25 273 INSERTION PILOT DETERMINING SECTION

FROM MCS SELECTING SECTION 290

FIG.13

MODULATION SCHEME

PILOT PATTERN

TIME

5 FREQUENCY

FIG.14

100-1~100-K CODING SECTION

110-1~110-K MODULATION SECTION

10 MOBILE STATION 1

MOBILE STATION 2

MOBILE STATION K

TRANSMISSION DATA 1

TRANSMISSION DATA 2

15 TRANSMISSION DATA K

180 TIME SLOT ASSIGNING SECTION

PATTERN INFORMATION

PILOT SYMBOL

20 FIG.15

272 DELAY DISPERSION MEASURING SECTION

FROM RADIO RECEPTION SECTION 200

274 MOVING SPEED ESTIMATING SECTION

FROM PILOT EXTRACTING SECTION 230

25 278 PILOT PATTERN INFORMATION GENERATING SECTION
TO TIME SLOT ASSIGNING SECTION 180

2F04152-PCT

60

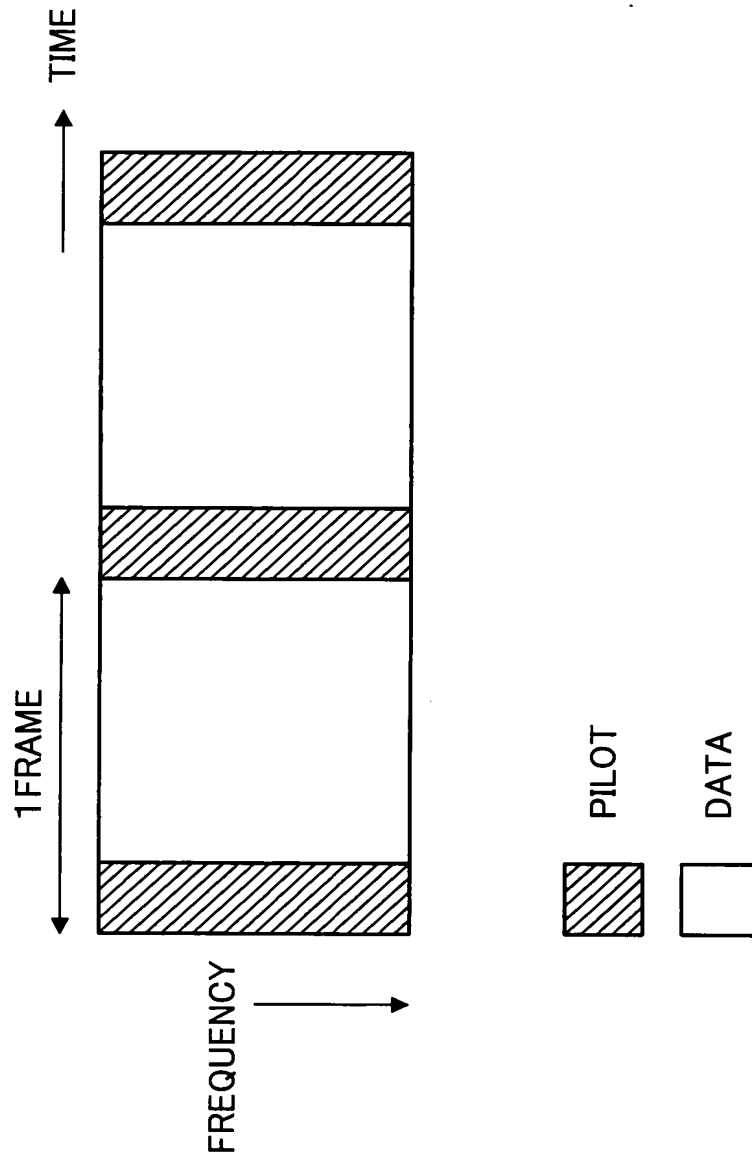
FIG.17

PATTERN

TIME SLOT

FRAME

5



PRIOR ART

FIG.1

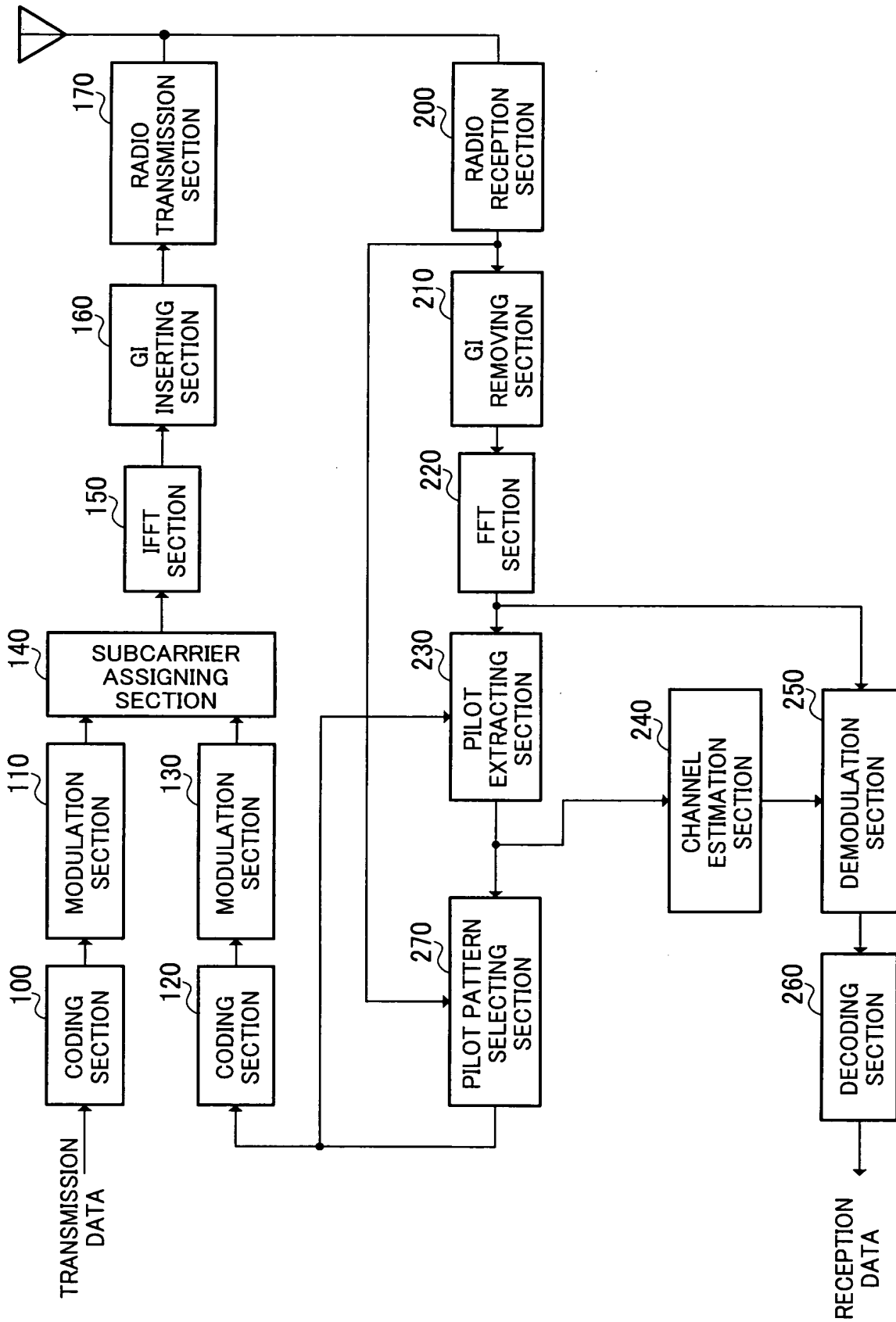


FIG.2

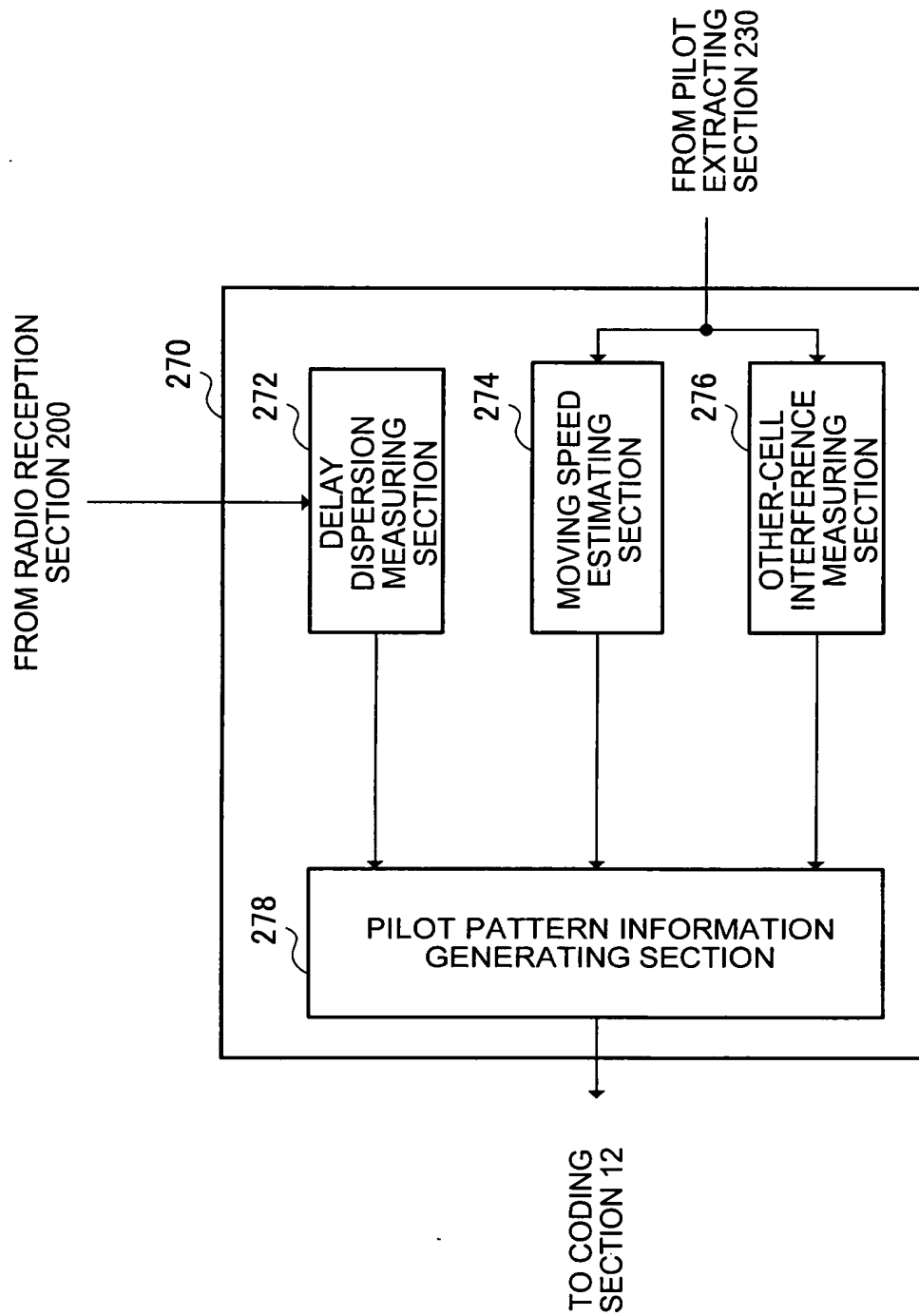


FIG.3

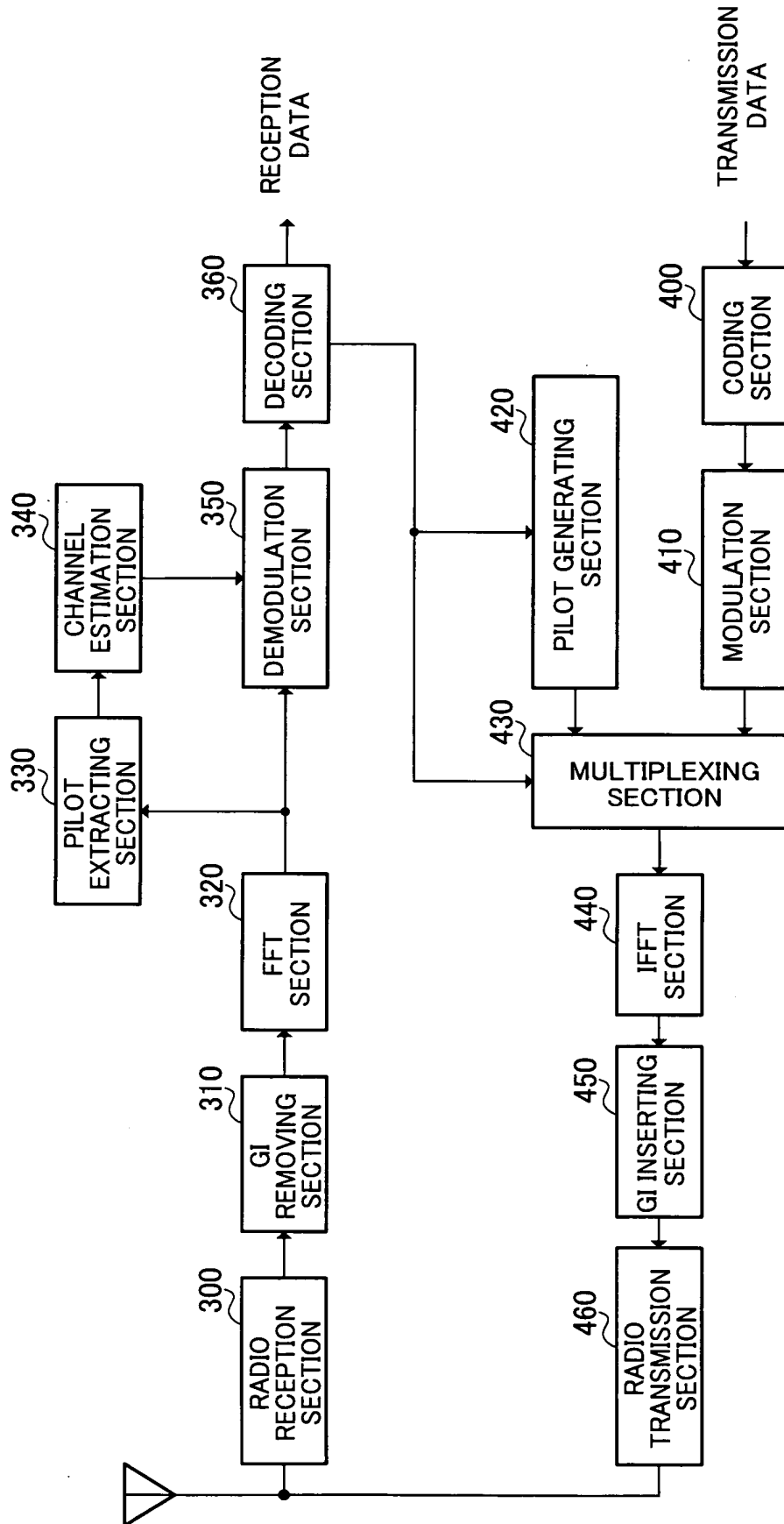


FIG.4

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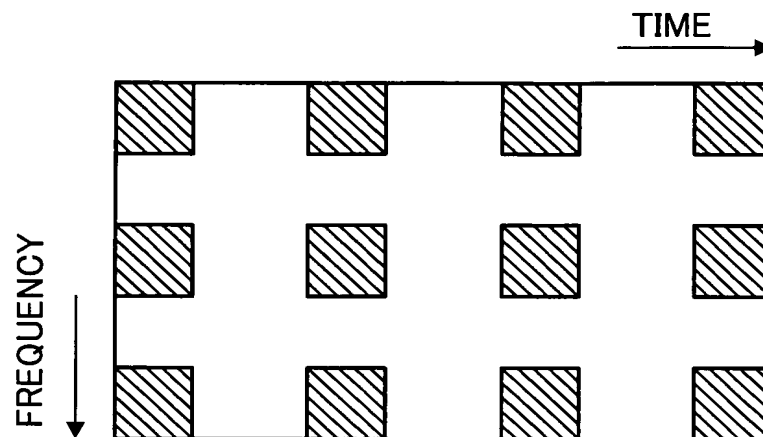


FIG.5A

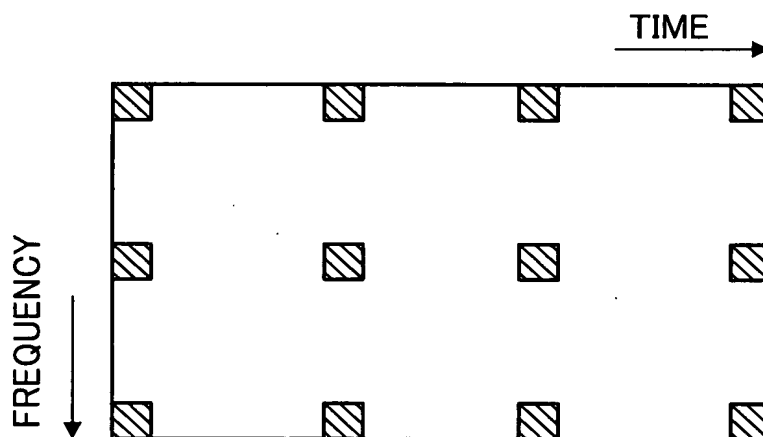


FIG.5B

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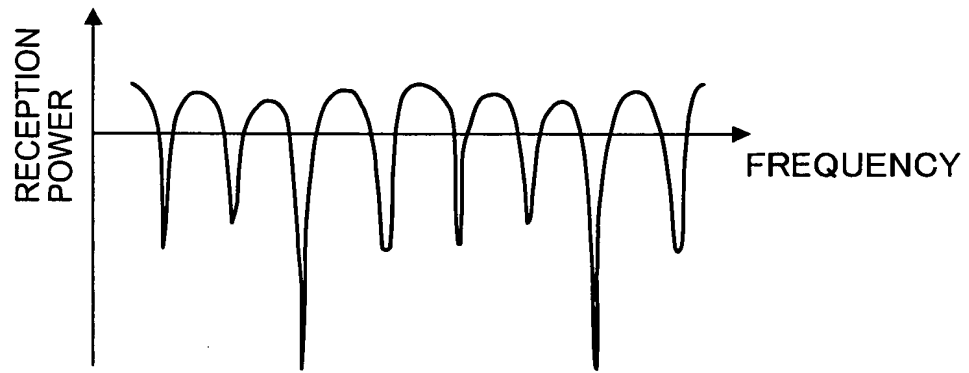


FIG.6A

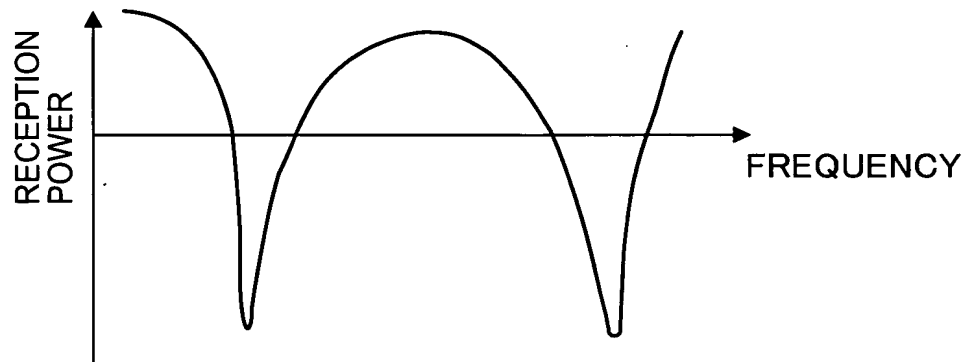


FIG.6B

7/17

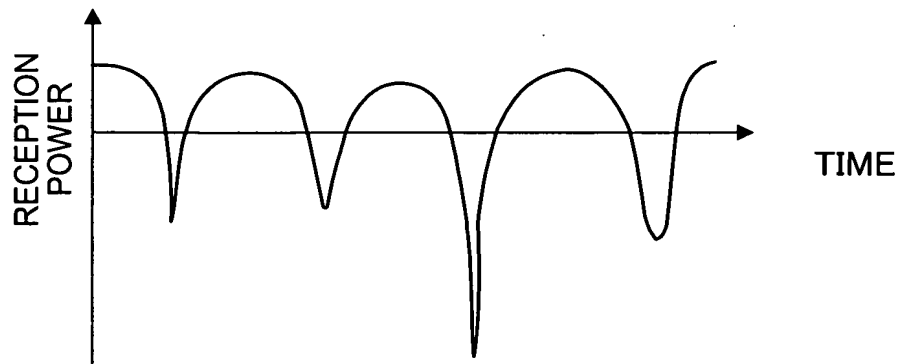


FIG.7A

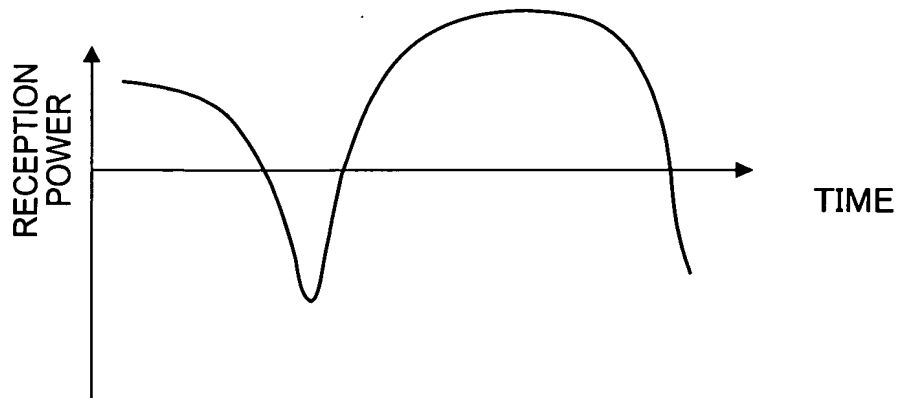


FIG.7B

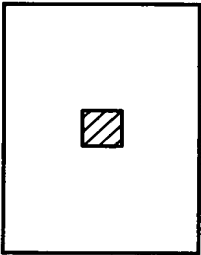
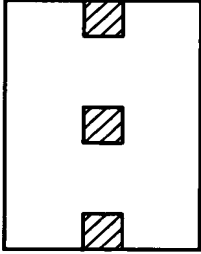
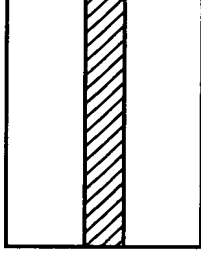
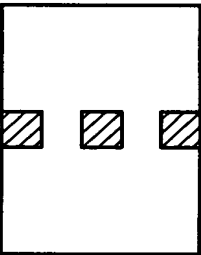
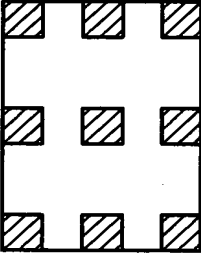
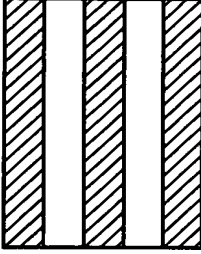
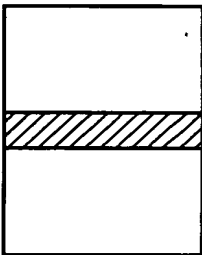
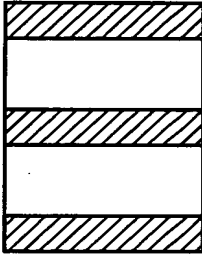
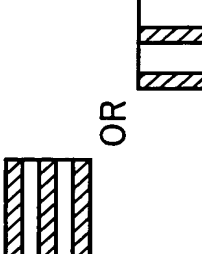
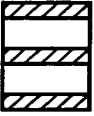
| MOVING SPEED | | | |
|--|---|--|----------------|
| $\sim T_c$ | $T_c \sim T_d$ | $T_d \sim$ | |
|  PATTERN 1 |  PATTERN 2 |  PATTERN 3 | $\sim T_a$ |
|  PATTERN 4 |  PATTERN 5 |  PATTERN 6 | $T_a \sim T_b$ |
|  PATTERN 7 |  PATTERN 8 |  OR  | $T_b \sim$ |
| DELAY DISPERSION | | | |

FIG.8

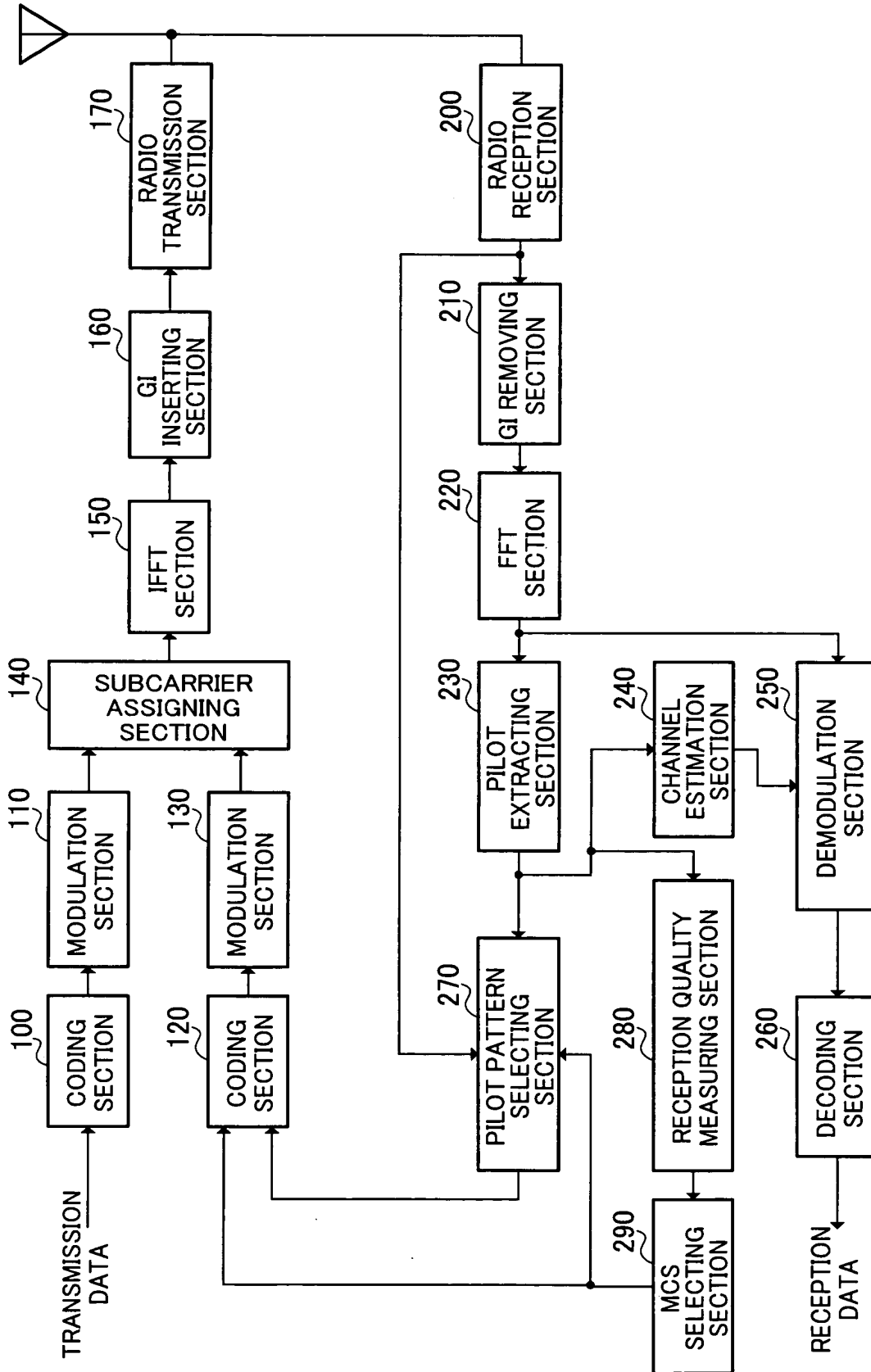


FIG.9

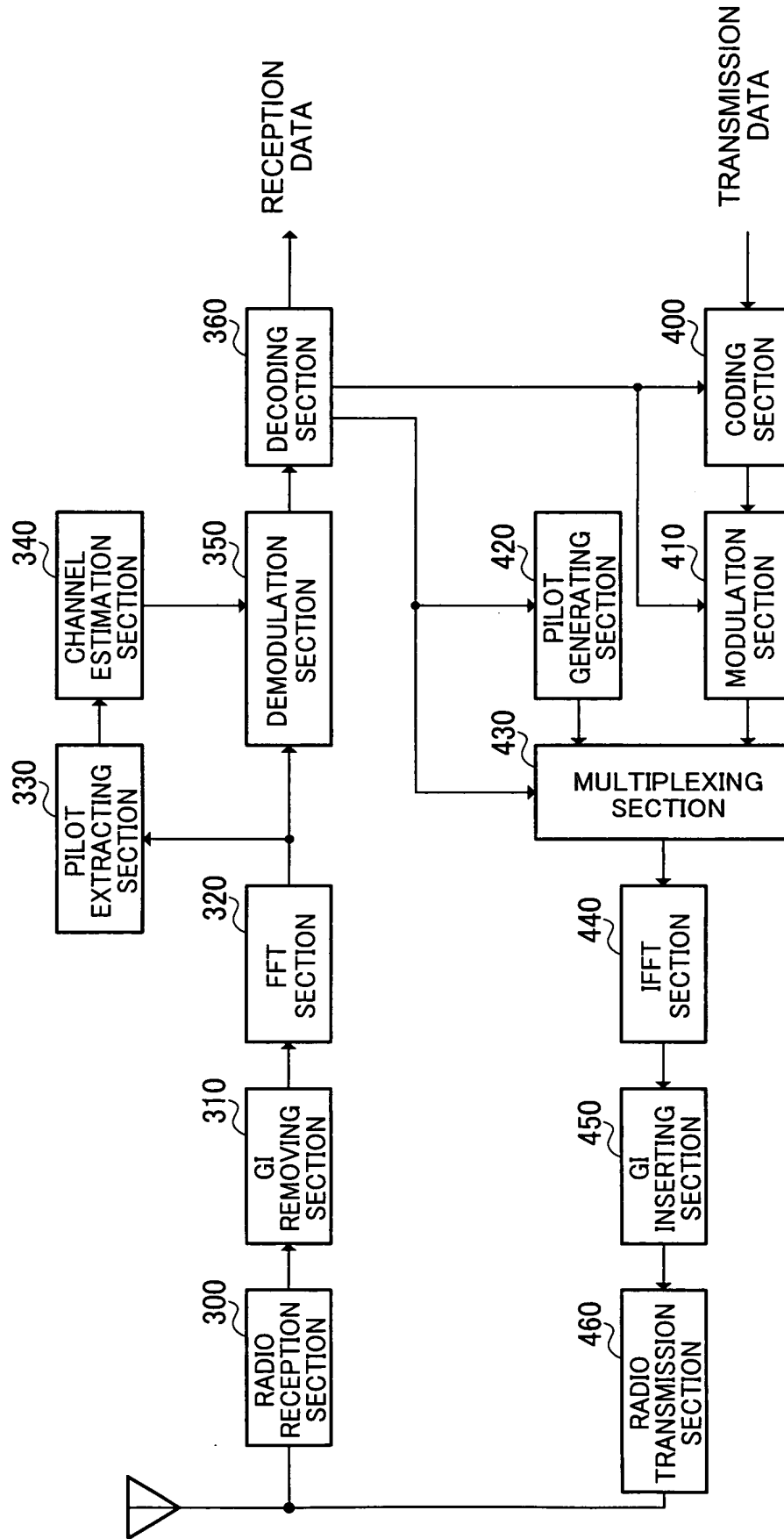


FIG.10

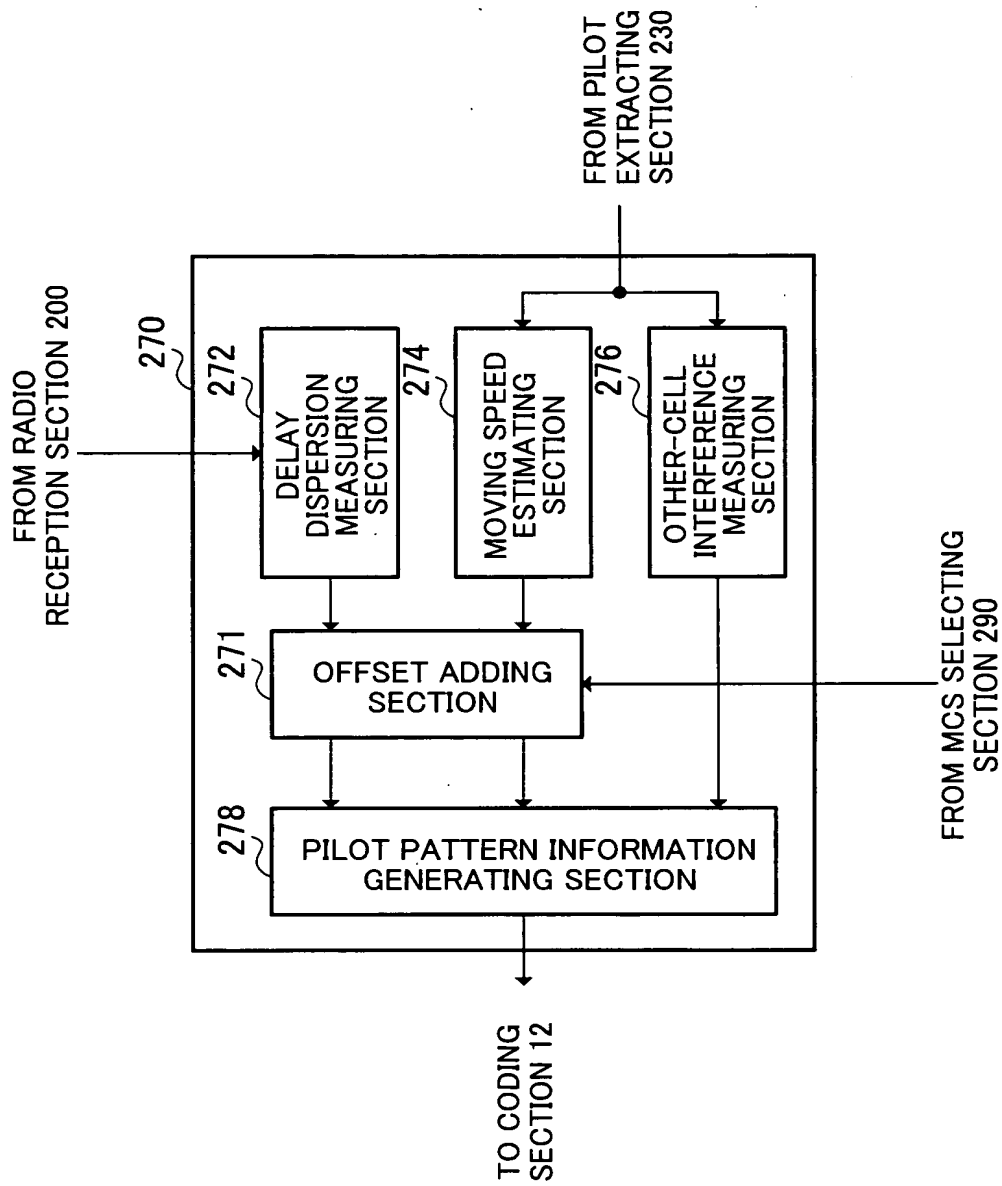


FIG.11

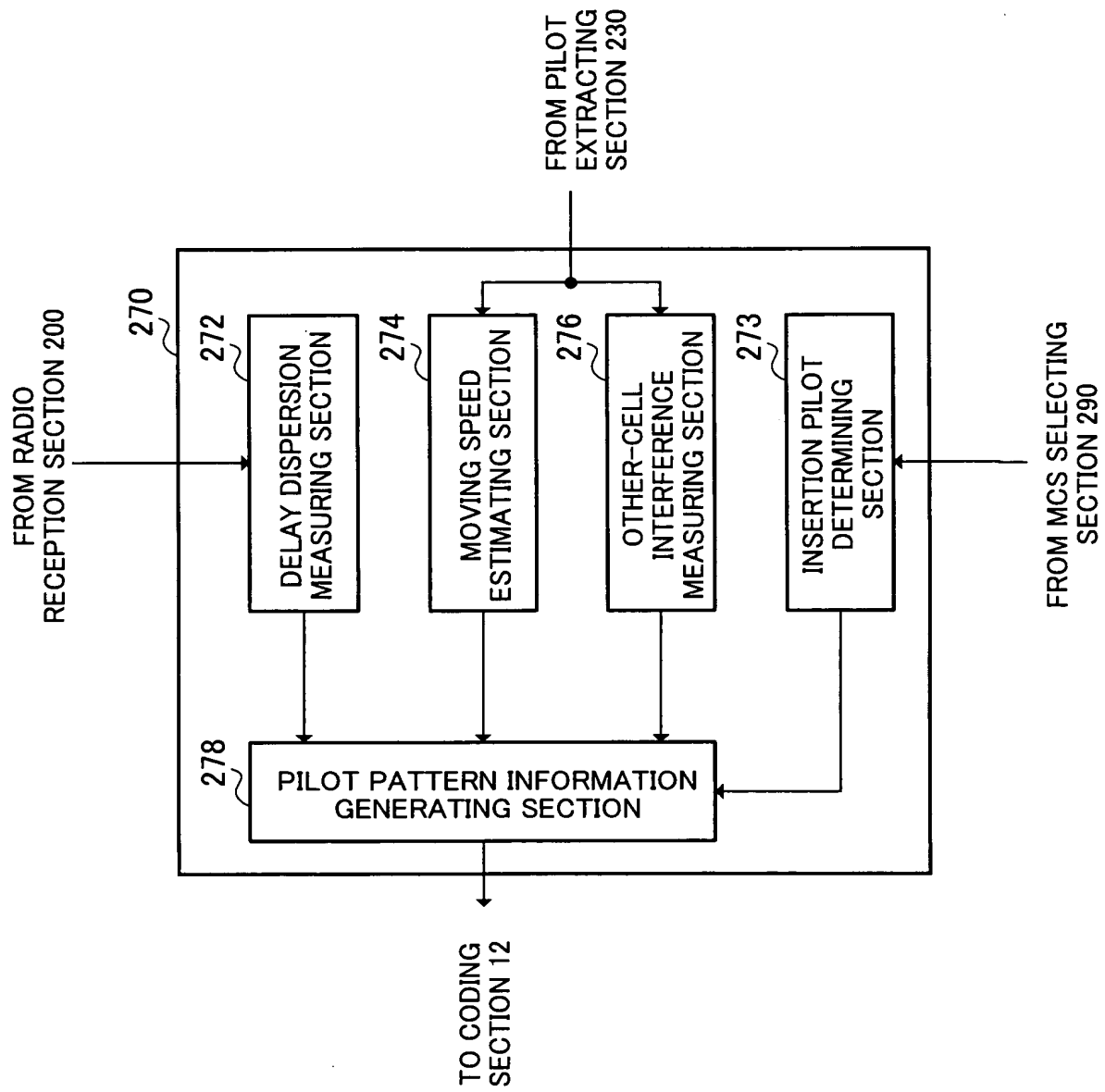


FIG.12

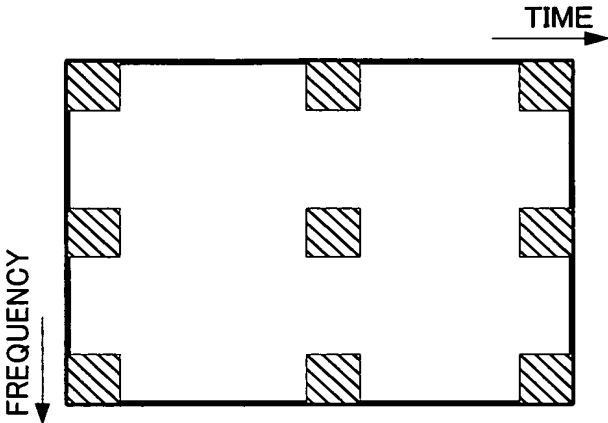
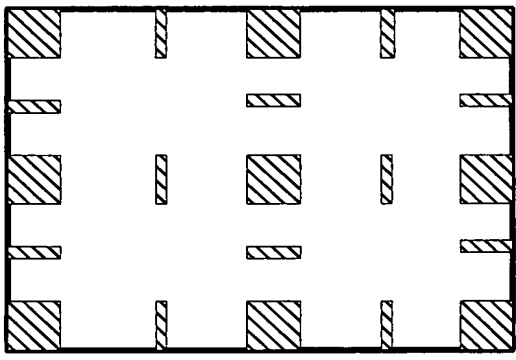
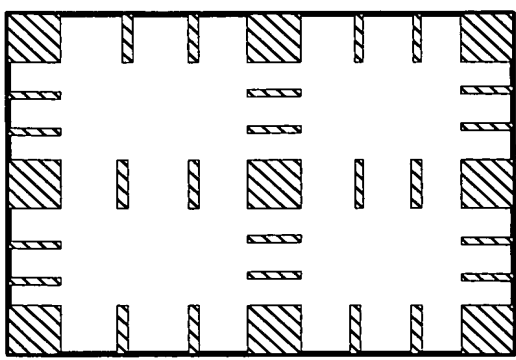
| MODULATION SCHEME | PILOT PATTERN |
|-------------------|--|
| QPSK |  <p>The diagram shows a rectangular grid representing a time-frequency plane. The horizontal axis is labeled 'TIME' with an arrow pointing right, and the vertical axis is labeled 'FREQUENCY' with an arrow pointing down. The grid contains 9 shaded rectangular blocks arranged in a 3x3 pattern, representing pilot signals. The blocks are located at the intersections of the first, second, and third rows and columns.</p> |
| 16QAM |  <p>The diagram shows a rectangular grid representing a time-frequency plane. The horizontal axis is labeled 'TIME' with an arrow pointing right, and the vertical axis is labeled 'FREQUENCY' with an arrow pointing down. The grid contains 25 shaded rectangular blocks arranged in a 5x5 pattern, representing pilot signals. The blocks are located at the intersections of the first, second, third, fourth, and fifth rows and columns.</p> |
| 64QAM |  <p>The diagram shows a rectangular grid representing a time-frequency plane. The horizontal axis is labeled 'TIME' with an arrow pointing right, and the vertical axis is labeled 'FREQUENCY' with an arrow pointing down. The grid contains 49 shaded rectangular blocks arranged in a 7x7 pattern, representing pilot signals. The blocks are located at the intersections of the first, second, third, fourth, fifth, sixth, and seventh rows and columns.</p> |

FIG.13

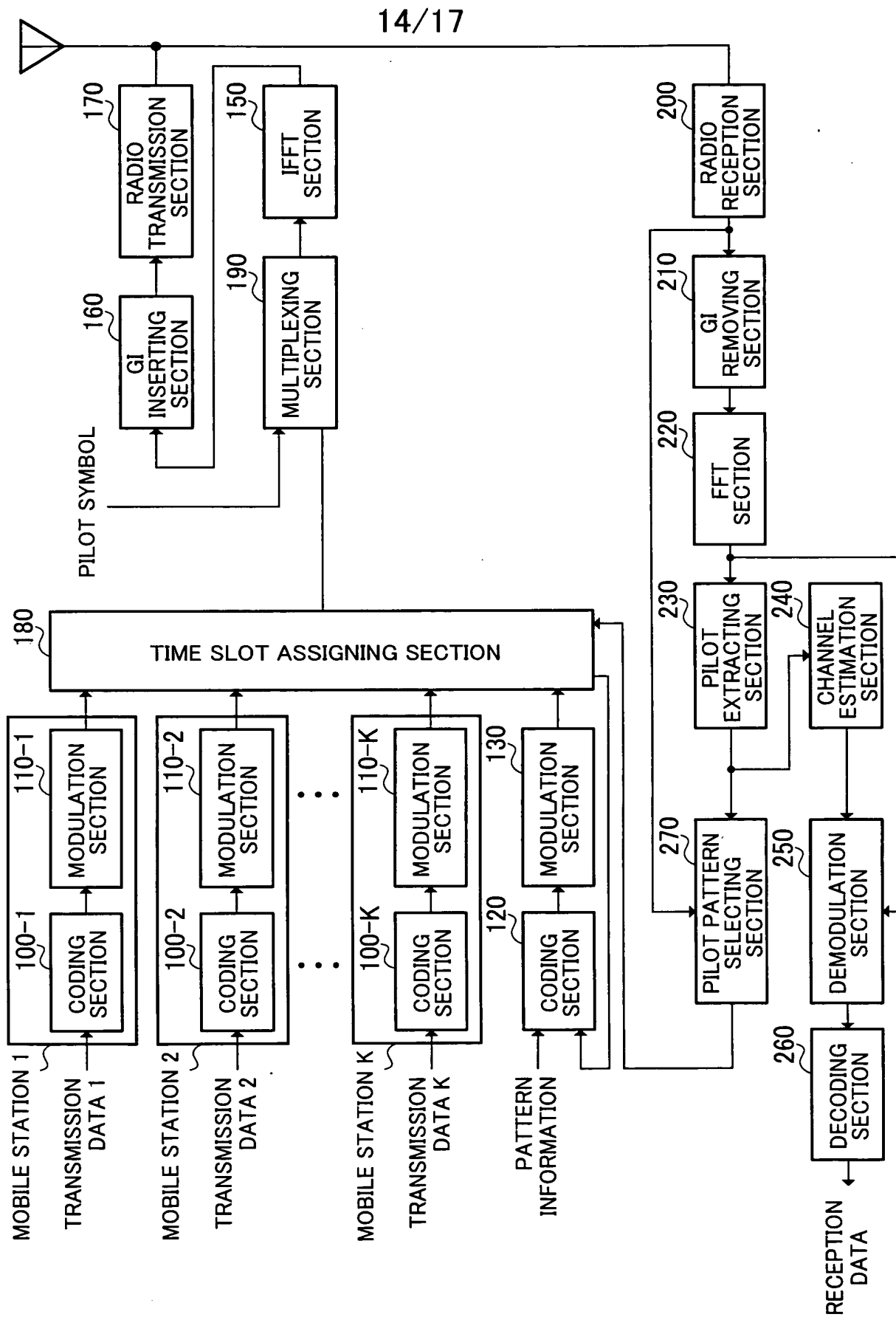


FIG.14

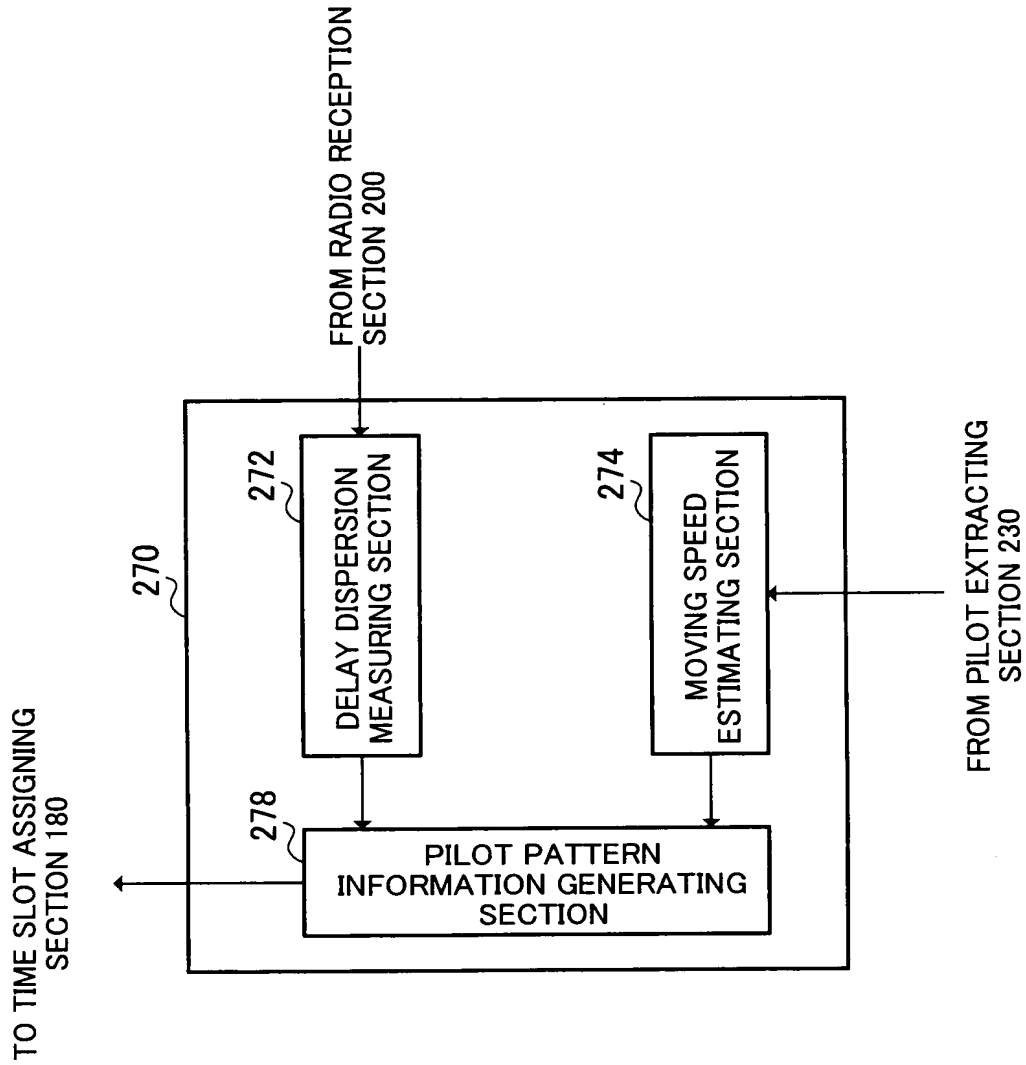


FIG.15

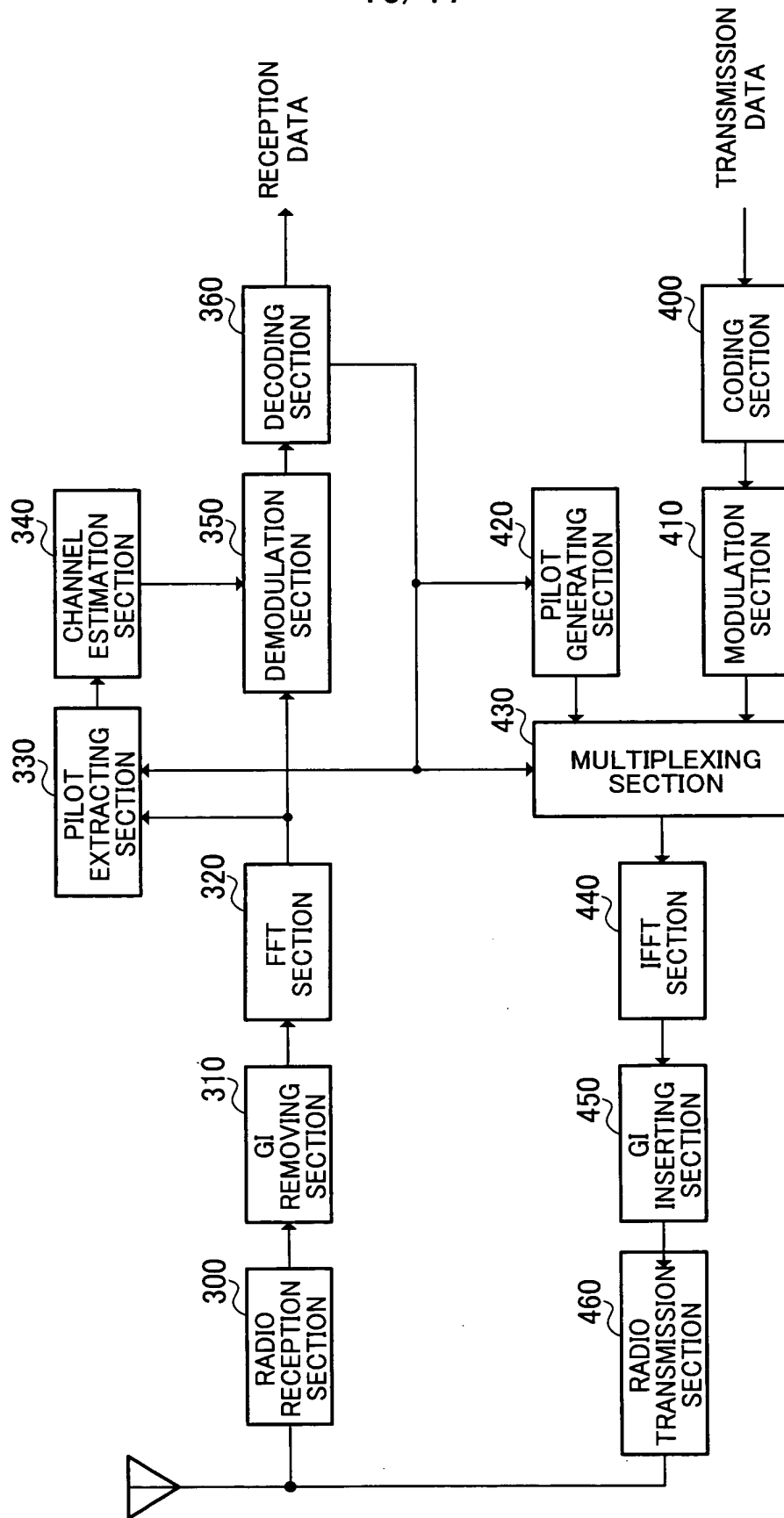


FIG.16

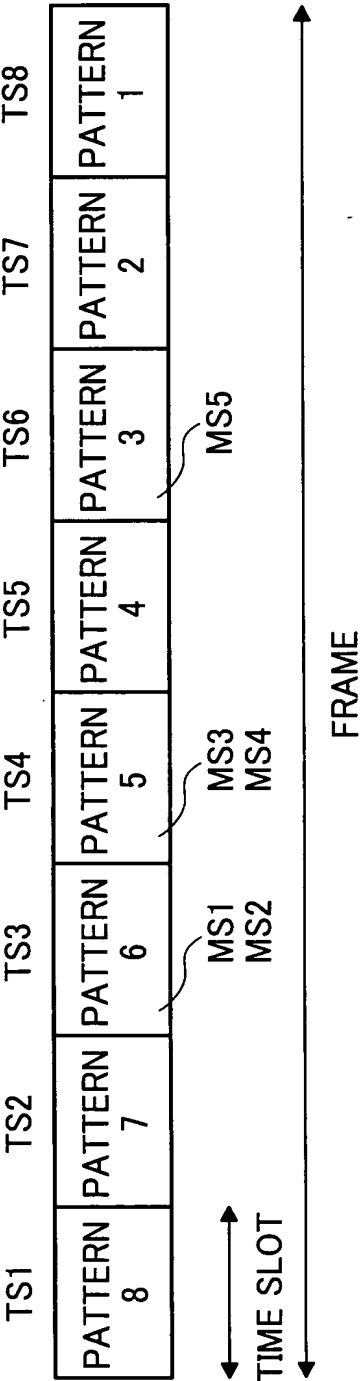


FIG.17